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COMMONWEALTH OF AUSTRALIA.

PATENT SPECIFICATION

63,468/60

Complete Specification Lodged .... 11th August, 1960.

Application Lodged(No. 63,468/60) .... 11th August, 1960.

Applicant..Bitfield Engineering Limited.

Actual Inventor...Jerzy Witold Macielinski.

Convention Application.
(Great Britain, 12th August, 1959).

WITHDRAWN BEFORE ACCEPTANCE.

Complete Specification Published .... 16th February, 1961.

Classification 60. 7; 96. 4; 62. 8; 69. 3.

International Classification F 06 j; F 04 c; F 06 d; B 61 f.

Drawing attached.

COMPLETE SPECIFICATION.

IMPROVEMENTS IN OR RELATING TO SEALING MEANS.

The following statement is a full description of this invention, including the best method of performing it known to us:-

This invention relates to sealing means for use between the body and shaft portions of a pot joint, that is a universal joint having pivot means projecting transversely from one end of a shaft portion and movable within a hollow pot-like body portion whose inner surface is formed with guide means with which the pivot means engage in such manner that a drive can be transmitted between said portions whilst relative angularity and axial movement of the portions is accommodated.

In order to prevent the ingress of dirt and damp and retain lubricant within a pot joint the latter is normally provided with sealing means between the body and shaft portions. These sealing means have to remain effective during the aforesaid relative angularity and axial movement, and a bellows-like sealing muff or gaiter is commonly used for this purpose securely fixed at both ends to the body and shaft portions respectively.

Such a muff or gaiter has to cope with very high angularity throughout its range of axial movement, and the continual axial extension and compression of such a sealing muff or gaiter and the accompanying axial stressing thereof tends to shorten its life and the object of the invention is to provide sealing means for a pot joint which possesses the main advantages of a sealing muff or gaiter as used at present whilst materially reducing the ill-effects which result from axial stressing of the muff.

According to the invention sealing means for a pot joint comprise a muff or gaiter of flexible material formed at one end for attachment to a body portion of the joint and provided at its other end with a sealing ring formed as a sliding fit on a shaft portion of the joint.

The main body of the muff is preferably of resilient flexible material such as rubber and of an axially extensible nature, conveniently being in the usual bellows-like form of generally decreasing diameter from a larger end to a smaller end at which the sealing ring is situated. Preferably the sealing ring is made from a synthetic plastic material such as nylon.

The invention will now be further described with reference to the accompanying drawings which illustrate, by way of example, a pot joint provided with sealing means in accordance with the invention, and in which:-

Figure 1 is a side view with the sealing means shown partly in section, and

Figure 2 is an end view of an annular sealing ring of the sealing means.

The pot joint is of generally conventional form comprising a hollow body portion 1 formed with internal longitudinally extending guide ways and a shaft portion 2 in engagement therewith. Neither of these parts is illustrated in detail in the drawings.

The sealing means, which are positioned between the open end of the body portion 1 and the shaft portion 2 comprise a sealing muff 3 having a moulded rubber body and the sealing ring 4. The muff 3 is of bellows-like form comprising a single inwardly directed convolution 5 which interconnects two generally cylindrical end portions 6 and 7 of different diameter.

At its larger end 6 the muff 3 is moulded with an inwardly directed lip 8 for engagement with a circumferential groove 9 in the body portion 1 of the pot joint. A circumferential groove 10 moulded in the outer surface of the muff 3 around the moulded lip 8 serves to accommodate a clamping ring or clip 12 for attachment of the muff 3 to the body portion 1.

At its smaller end 7 the muff 3 is moulded with an internal annular groove 13 by which the sealing ring 4, which is of nylon or other synthetic plastic material having suitable low-friction properties, is held in position. This ring has a radial split 14 enabling it to be sprung into position on the shaft portion 2, which at its other end is formed as usual with a flange or other means enabling it to be attached to a driving member (which is not illustrated), after which the smaller end 7 of the muff 3 is sprung into position around the ring 4.

In use the muff 3 tends to remain of substantially constant axial length, relative axial movement of the body and shaft portions 1 and 2 being largely accommodated by sliding movement of the sealing ring 4 upon the shaft portion 2. Thus axial stressing of the muff 3 results mainly from stretching of the latter to accommodate angularity of the joint and a relatively small component of such stressing results from relative axial movement of the body and shaft portions 1 and 2. As a result, the muff 3 can be designed so that it is substantially evenly stressed for all working conditions, which was not possible hitherto, so that the muff 3 has a correspondingly long working life.

For improved sealing the split 14 may be of oblique or stepped form. Alternatively a plurality of rings such as 4 may be used with their gaps staggered, or the ring may be of wound helical form.

The claims defining the invention are as follows:-

1. Sealing means for a pot joint, comprising a muff or gaiter of flexible material formed at one end for attachment to a body portion of the joint and provided at its other end with a sealing ring formed as a sliding fit on a shaft portion of the joint.

(12th August, 1959).

2. Sealing means according to claim 1, wherein the main body of the muff is of resilient flexible material such as rubber. (12th August, 1959).

3. Sealing means according to either of the preceding claims, wherein the muff is of an axially extensible nature. (12th August, 1958).

4. Sealing means according to claim 3, wherein the muff is of bellows-like form of generally decreasing diameter from a larger end to a smaller end at which the sealing ring is situated. (12th August, 1959).

5. Sealing means according to claim 4, wherein the muff has a single inwardly directed convolution. (12th August, 1959).

6. Sealing means according to claim 4 or 5, wherein the muff is moulded at its larger end with an inwardly directed lip for engagement with a circumferential groove in the body portion of the joint (12th August, 1959).

7. Sealing means according to any of claims 4 to 6, wherein the muff is moulded at its smaller end with an internal annular groove by which the sealing ring is held in position. (12th August, 1959).

8. Sealing means according to any of the preceding claims, wherein the sealing ring is made from a synthetic plastic material such as nylon. (12th August, 1959).

9. Sealing means according to any of the preceding claims, wherein the sealing ring is of split form to enable it to be sprung into position around the shaft portion of the pot joint. (12th August, 1959).

10. A pot joint provided with sealing means in accordance with any of the preceding claims. (12th August, 1959).

11. Sealing means for a pot joint, constructed and arranged substantially as herein particularly described with reference to the accompanying drawings. (12th August, 1959).

12. The parts, elements and features referred to or indicated in the specification and/or claims and collectively, and any and all combinations of any two or more of said parts, elements or features. (11th August, 1960).

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Related Art:

Serial No.	Application No.	Classification.
222,779	36,918/58	96.4; 60.7
219,577	37,297/58	96.4
162,049	23,480/53	60.7; 60.9.

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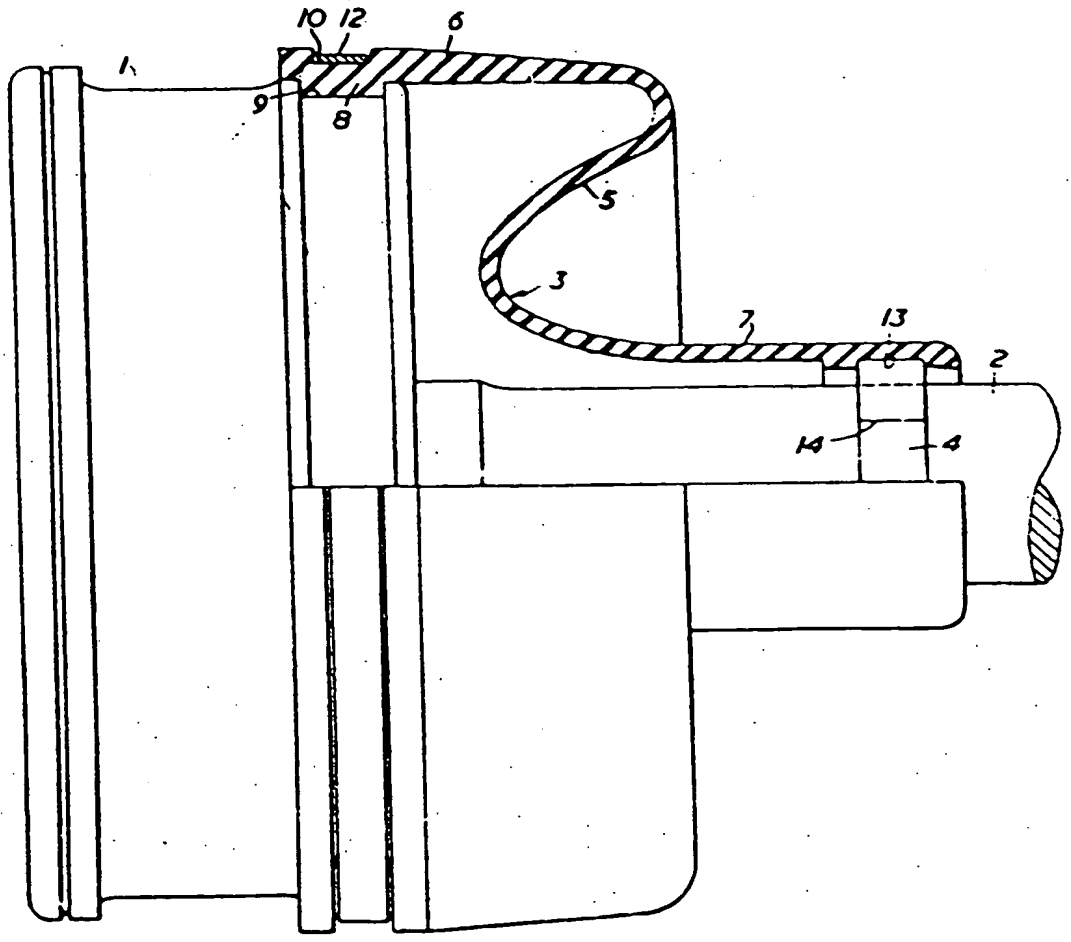

FIG. 1.

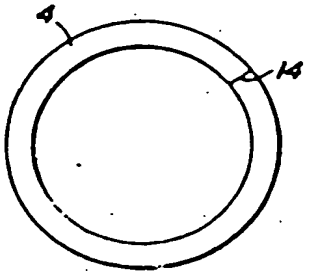

FIG. 2.